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| Office Action Summary | Application No. | Applicant(s) | |
| | 09/873,830 | JABRI, MOHAMED I. | |
| | Examiner | Art Unit | |
| | Matthew A. Dickeson | 2122 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-23 were presented for examination. The priority date established for examination of this application is 6/5/2000. Claims 1-23 remain pending in this application and were considered by the examiner.

Priority

2. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: an end 220 (Pg. 10, par. 0030, l. 3), forks 260 and states 270 (Pg. 10, par. 0030, l. 5). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: "a variety types" (e.g., Pg. 3, par. 0005, l. 6), "steps in well coherent and logical to retrieve" (Pg.

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14, par. 00039, l. 6) and "allowing the end-user directly interacts with and manipulates" (Pg. 15, par. 00041, l. 5) are examples of improperly constructed phrases found in the specification. These examples are representative of and do not comprise all such errors noted in the specification. Applicant is requested to review and appropriately correct all errors in the specification.

5. The use of the trademarks "Java" (e.g., Pg. 6, Par. 00018, l. 4), "CORBA" (e.g., Pg. 11, Par. 00031, l. 12), "DCOM" (e.g., Pg. 11, Par. 00031, l. 12), "Internet Explorer" (e.g., Pg. 12, Par. 00035, l. 5), and "Netscape" (e.g., Pg. 12, Par. 00035, l. 6) have been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

To expedite correction on this matter, the examiner suggests the following guidelines for applicant to follow in amending the specification:

- i. Capitalize each letter of a trademark or accompany the trademark with an appropriate designation symbol, e.g., TM or ®, as appropriate.
- ii. Use each trademark as an adjective modifying a descriptive noun. For example, it would be appropriate to recite "the JAVA platform" or "the JAVA programming language". Note that in these examples, "platform" and "programming language" provide accompanying generic terminology, describing the context in which

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the trademark is used. By itself, the trademark JAVA specifies only the source of the so-labeled products, namely SUN Microsystems, Inc.

Claim Objections

6. Claims 7, 13, and 22 are objected to because of the following informalities: "high-level structure" should be pluralized for conformance with applicant's previous pluralizations, e.g. "defining one or more interrelated objects ... and constructing one or more high-level structure ...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-2, 4-8, 17-18, and 20-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 17 recite the limitation "the converted response objects" in the last sentence of each claim, respectively. There is insufficient antecedent basis for this limitation in these claims.

Claims 2, 4-8, 18, and 20-23 are also rejected for being dependent on a rejected base claim.

Claims 3 and 19 incorporate a limitation into their rejected base claims which corrects the deficiency inherent in those claims, and as such are not rejected under 35 U.S.C. 112, second paragraph. Applicant is suggested to incorporate this limitation into

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the respective rejected base claims of claims 3 and 19 to overcome the rejection under 35 U.S.C. 112, second paragraph, as applicant has done in claim 9.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-7, 9-15, and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyengar et al. (6,018,627) in view of Diec (6,324,568).

Referring to claim 1, Iyengar et al. ('627) disclose a system for application building in an object-oriented environment (*developing software applications at an abstract design level*), in which the user may create business process models and assign business logic to those models, and then package and deploy the created application (See Abstract, Figs. 1-14 and related text). The method of Iyengar et al. ('627) comprises:

"capturing an application logic at the abstract design level as ... visual models ... independent from an underlying programming technology" (E.g., see Figs. 2a-b, 3 and 4, and Col. 5, l. 21-30 and 37-59, which states that the preferred embodiment of the invention uses UML, "a method for specifying, visualizing, and documenting the components (objects) of a system under development", to generate models which can be transformed "into any other business process model or object model." The modeling system works independently of the tools used to create the application, and independently of the middleware (connectivity software) that the application interfaces with.)

"deploying the captured application logic to an execution platform" (E.g., see Fig. 1 - Deploy Application 32, and Col. 12, l. 30-33, which states that "The development process ... will generally end in the application deployment stage. Deployment takes built applications and installs them in the appropriate environments.")

Iyengar et al. ('627) teach that the application can be developed in conjunction with middleware options (See Col. 11, l. 26-59), but do not explicitly teach the steps of executing the application logic in response to a request from a client, processing the request, returning a response, or presenting the response to the client.

Diec ('568) describes a method and system for distributing objects over a network, which passes information between a client and a server through an intermediary server where transformation of the information takes place (See Abstract, Figs. 1 and 3 and related text, and Background and Summary of the Invention). The method of Diec ('568) comprises:

“executing the application logic from the execution platform in response to an external request sent by an external client device, the external request having one or more parameters” (See Background of the Invention, e.g. Col. 1, l. 20-26, which states that “The end user at the client [requests information] which launches the CGI application on the Web server ... The end user at the client supplies the requested information, as a search request, an order, a user id and password, or the like, and sends the data back to the CGI program.” The CGI application is executed in response to a request for information from the client, obtains information from the client to pass to the application server, and then sends the information to the application server to execute the application logic on the client’s request.)

“processing the external request” (E.g., see Col. 1, l. 29-38, which states “the CGI application translates the query or information ... The web server sends the query or information to the application server. The application server performs the requested task ...”)

“returning one or more response objects after processing the external request” (E.g., see Fig. 3, and Col. 3, l. 23-27, which states “The web server translates or otherwise converts ... and sends the responses to the application server. The application server returns objects to [the] web server.”)

“presenting the converted response objects to the external client device” (E.g., see Col. 1, l. 38-42, which states “The CGI application ... sends the ... information back to the client.”)

Iyengar et al. ('627) also suggest that the developed application may be packaged with middleware, including "HTML and Internet Server based middleware", but that the application does not require specific middleware to be tested (See Col. 11, l. 33-59). Furthermore, Diec ('568) also teaches that the application running on the application server, that is, the application logic being executed based on the request from the client, "can be a database application or an e-commerce application or the like" (See Col. 1, l. 31-34).

Therefore, one of ordinary skill in the pertinent art would have an understanding of the application development and deployment steps disclosed by Iyengar et al. ('627), the application execution steps disclosed by Diec ('568), and the implied connection between the two methods. It would have been obvious to one of ordinary skill in the pertinent art at the time of invention by applicant to combine the teachings of Iyengar et al. ('627) and Diec ('568) to create a method for developing, deploying, and executing application logic in response to a client.

One of ordinary skill in the art would have been motivated to augment the development and deployment method of Iyengar et al. ('627) with the middleware execution method disclosed by Diec ('568) to support clients that cannot support object-oriented input and output structures. One of ordinary skill in the art would have been further motivated to combine the teachings of the references to produce a single, concise means for developing, deploying, and executing an application whose capabilities extend to network and Internet use. Such a means would be an all-in-one package, thus more user-friendly and straightforward than the use of independent

proprietary means in concert. Such a means would also make the developed application more accessible through network and Internet deployment.

As to claim 2, Diec ('568) further describes a processing step where "The web server translates or otherwise converts the responses [from the client] into a suitable form for the application server (*converting the parameters of the external request*), and sends the responses to the application server (*passing the converted parameters to the application logic*). The application server returns objects to the web server" (e.g., see Fig. 3 and Col. 3, l. 23-27). It is implied that a suitable format for the input to the application server is objects, since the application server outputs objects (*converting ... to one or more objects*). This teaching, combined with the teachings of the references as applied above to claim 1, reasonably reads on the limitations of applicant's claim 2. One of ordinary skill in the art would also have been motivated to combine these teachings for compatibility with object-oriented applications and databases, and to provide fuller advantages of such an all-in-one package means.

As per claim 3, Diec ('568) further describes a system, stating that "This interface application program sends a markup language form ... to the client, and receives information ... from the client in response to the markup language form (*parameters of the external request*). This information is sent from the web server to the application server ... The interface receives responsive information from the application server ... [which] includes functions objects, data objects, and application objects (*response objects*) ... This information ... is converted into markup language (*converting the response objects to a predetermined format based on a type of the external client*

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device or the parameters of the external request), and transmitted to the client" (e.g., see Col. 3, l. 37-51). This teaching, combined with the teachings of the references as applied above to claim 1, teaches the limitations of applicant's claim 3. One of ordinary skill in the art would also have been motivated to combine these teachings for compatibility with non-object-oriented clients, and to provide fuller advantages of such an all-in-one package means.

In regard to claim 4, Iyengar et al. ('627) also describe a repository (*storage device schema*) in which "all of the entities and objects associated with the application under development, as well as relationships between these entities and objects, are stored (*one or more storage device schemas in at least one storage device as required by the captured application logic*)" (e.g., see Col. 4, l. 21-32). It is inherent that the repository is generated during development of an application to store the developed components of that application. Since the repository is not a transient storage medium, it is also inherent that such a repository resides on at least one storage device. This teaching, when combined with the teachings of the references as applied above to claim 1, reads on the limitations of applicant's claim 4.

With respect to claim 5, Iyengar et al. ('627) also state that during the application deployment stage, "Deployment takes built applications and installs them in the appropriate environments (*saving the captured application logic to the execution platform*)" (e.g. see Col. 12, l. 30-33). Inherent to installing an application is saving the components of that application for later execution. This teaching, combined with the

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teachings of the references as applied to claim 1, recites the limitations of applicant's claim 5.

Referring to claim 6, Diec ('568) further describes the possible applications of the application server, "for example to read and write data to a database (*retrieving one or more objects from ... and updating one or more storage device schemas in the storage device*)" (e.g. see Col. 3, l. 65-66 and Col. 4, l. 1-5). Reading from a database (*storage device schema*) causes the database to return information, and the application server described by Diec ('568) returns objects; thus, instructing the application server to read from a database would cause it to retrieve one or more objects from the storage device on which the database resides. Writing to a database adds to or updates the information stored in that database; thus, instructing the application server to write to a database would cause it to update that database. This teaching, combined with the teachings of the references as applied to claim 1, recites the limitations of applicant's claim 6. One of ordinary skill in the art would also have been motivated to combine these teachings to allow the developed application to access databases, including object-oriented databases, and to provide fuller advantages of such an all-in-one package means.

As to claim 7, Iyengar et al. ('627) also teach the implementation of a class diagram, which describes "the types of objects in a system and the various kinds of relationships which exist between them (*defining one or more interrelated objects for the visual models*)" (e.g. see Col. 3, l. 65-66 and Col. 4, l. 1-11). The reference also discloses a means for creating the methods that represent the details of business

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processes (*one or more high-level structure*). "For example, if the business process is the handling of purchase orders, one detail ... may be that purchase orders over \$1,000 must be approved by a manager" (see Background of the Invention, e.g. Col. 1, l. 34-41). This example represents a formula that details a part of the business logic (*one or more formulas to represent the application logic*). Iyengar et al. ('627) provide a means for the user to write and edit business logic, in the language of the user's choice, as part of the development phase (see Fig. 1 and related text, e.g. Col. 2 l. 57-58). These teachings, combined with the teachings of the references as applied to claim 1, read on the limitations of applicant's claim 7.

Claim 9 is an amalgamation of the limitations of claims 1, 3, and 4, and one of the limitations of claim 2, "*converting the parameters of the external request to one or more objects*". The teachings of the combination of Iyengar et al ('627) and Diec ('568) address all of these limitations, as shown above. Thus, the teachings of the combined references read on all of the limitations of claim 9.

Claim 10 recites the limitation of claim 2 that is not recited in claim 9, "*passing the converted parameters to the application logic*", and applies it with the limitations of claim 9. This has the net effect of applying all of the limitations of claims 1, 2, 3, and 4 in a single claim. However, since the combined references teach all of the limitations of claims 1-4 as shown above, they also teach all of the limitations of claim 10.

Claims 11, 12, and 13 recite the same limitations as claims 5, 6, and 7, respectively. Since the combined references teach all of the limitations of claims 5-7 as shown above, they also teach all of the limitations of claims 11-13.

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Addressing claim 14, Iyengar et al. ('627) disclose a means for creating the methods that represent the details of business processes, and provide an example of a formula regarding the approval of purchase orders, as described above in reference to claim 7. This formula can be represented by a decision statement (*a process*). Since the example in the reference embodies a process, this teaching, when combined with the teachings of the references as applied to claim 9, reads on the limitation of applicant's claim 14.

As to claim 15, Iyengar et al. ('627) discuss a means for creating the methods that represent the details of business processes, and disclose an example of a formula regarding the approval of purchase orders, as described above in reference to claim 7. This formula can be represented by a decision statement, or a decision rule. Thus, in the example disclosed by the reference, the high-level structure can also be a rule. This teaching, combined with the teachings of the references as applied to claim 9 above, reads on the limitation of applicant's claim 15.

Claim 17 is a system claim which recites the same limitations as those of the method of claim 1. Although claim 17 is directed to a different class of statutory subject matter than claim 1, it does not recite any limitations different than those of claim 1. Therefore, as the combined references teach all of the limitations of claim 1 as shown above, they also teach all of the limitations of claim 17.

Similarly, claims 18, 19, 20, 21, and 22 are directed to a different class of statutory subject matter (a system rather than a method), but recite the same limitations as claims 2, 3, 4, 6, and 7, respectively. Since the combined references teach all of the

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limitations of claims 2-4 and 6-7 as shown above, they also teach all of the limitations of claims 18-22.

11. Claims 8, 16, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyengar et al. ('627) in view of Diec ('568) as applied to claims 1, 9, and 17 above, and further in view of Rational Rose.

Referring to claim 8, Iyengar et al. ('627) teach the applications of relationships to objects in a class, including associations (*relationship to at least one other object*), subtypes (*object type*), and aggregations (*object attribute*). Since these descriptors are defined at the class level, they are defined for each object (e.g. see Col. 4, l. 3-11). Iyengar et al. ('627) also teaches the use of Rational Rose 4.0 as a tool to develop object models in accordance with the invention (see Fig. 8 and related text, e.g. Col. 9, l. 13-28).

Iyengar et al. ('627) do not explicitly teach the step of defining the expected behavior of each object in a class.

Rational Rose describes the assignment of many different parameters to classes, and to objects within those classes (see Using Rational Rose 4.0, Chapters 1-13 and Appendix A). The reference describes the section where a user writes the specification of a class or object, enabling the user to "display and modify the properties (*attributes*) and relationships of a model element, such as a class (*object type*), a relationship, or an operation (*expected behavior*)" (e.g., see Pg. 31, par. 7). Rational Rose further defines the role of the Operations tab in a class specification, stating that operations "can be methods ... that implement characteristic behaviors (*expected behavior*) of a class" (see

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Chapter 4, related figures and text, e.g. Pg. 49, par. 1). Since classes describe their objects, defining the specification of a class inherently defines the default properties and relationships of each object in that class (*defining further includes, for each object, ...*).

Therefore, it would have been obvious to one of ordinary skill in the pertinent art at the time of invention by applicant that defining the expected behavior of an object would also be included in the invention of Iyengar et al. ('627), using the teachings of Rational Rose. One of ordinary skill in the art would have been motivated to use this teaching to take full advantage of the existing functionality of the prior art.

Claim 16 recites the same limitations as claim 8. Since the combined references read on the limitations of claim 8 as shown above, they also read on the limitations of claim 16.

Claim 23 is directed to a different class of statutory subject matter than claim 8, but recites the same limitations as claim 8. Since the combined references teach the limitations of claim 8 as shown above, they also teach the limitations of claim 23.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Dickeson whose telephone number is (571) 272-7219. The examiner can normally be reached on Monday thru Friday, 8:00am - 4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAD



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